

## REMARKS

This is responsive to the Office Action dated April 4, 2003 in which the Examiner rejects claims 1- 22 as being anticipated by, or being obvious over, Dening (U.S. Patent No. 6,333,677) under 35 U.S.C. §102(e), and agrees that claims 23-26 have allowable subject matter. The applicants have further amended independent claims 1, 7, 11 and 18 to more clearly define the present invention, as well as independent claims 12 and 19 to perfect the claim language. The applicants respectfully traverse the rejections of the Examiner's based on the amendment and the following detailed explanation.

First of all, the applicants believe a brief explanation of the present invention will be helpful in understanding the patentably distinguishing features in the claims over the cited prior art. The present invention discloses a novel technique to boost the bias of an output stage in a multi-stage power amplifier circuit which typically comprises at least an input stage in addition to the output stage. As taught by the present invention, a current equal or proportional to the input signal or input current sensed in the input stage is fed to an output stage bias circuit for boosting the output stage bias. This feature is now expressly defined in all independent claims 1, 7, 11, 18 and 21 with similar language. Preferably, the input current is sensed as a collector current of an amplifying transistor in the input stage (as defined in independent claims 1 and 21).

Applicants respectfully disagree with the assertion of the Examiner that the present invention defined in independent claims 1, 7, 11, 18 and 21, which is typically applicable in a multi-stage power amplifier circuit, is anticipated by or obvious over the Dening patent. In particular, Dening does not teach or imply to utilize an input signal sensed in the input stage to boost the output stage bias. In fact, Dening is apparently directed to a single-stage power amplifier which only comprises an output stage but does not include an input stage, and therefore it can be found nowhere

in Denning a teaching or implication that an input signal sensed in the input stage is fed to the output stage bias circuit so as to boost the output bias. It is noted that the bias circuitry improvement disclosed in Denning is an arrangement within the output bias circuit 110 for the output transistor amplifier 12. More specifically, both the bias transistor 112 and 114 are components of the same output bias circuit 110. This is clearly described throughout the Denning patent (see, e.g., col. 5, lines 55-65, col. 6, lines 34-42, figures 5A and 7, etc).

Therefore, the applicants believe that independent claims 1, 7, 11, 18 and 21, with the distinguishing feature of utilizing the input signal current sensed in the input stage to boost the output stage bias, is not anticipated by, or is obvious over, the cited Denning patent. Claims 1, 7, 11, 18 and 21 are thus believed patentable. Moreover, claims 1 and 21 further defines that the collector current in an input stage transistor is used as the sensed input signal, which can not be found in Denning and thus further strengthens the patentability of claims 1 and 21.

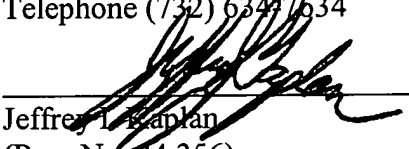
At least for the same reasons, dependent claims 2-6, 8-10, 12-17, 19-20 and 22-26 are also patentable, as each of them includes all the limitations of one of the independent claims 1, 7, 11, 18 and 21. In particular, claims 2-3, 13-15, 20 and 22-26 further defines more specific and distinguishing circuitry arrangements, such as the feature that a current mirror circuit is used to sense the collector current of the input stage transistor, which can not be found in the Denning patent. Thus, the patentability of these claims is further strengthened. Moreover, as admitted by the Examiner, claims 22-26 have allowable subject matter.

Applicants therefore respectfully request reconsideration and allowance in view of the above remarks and amendments. The Examiner is authorized to deduct additional fees believed due from our Deposit Account No. 11-0223.

Respectfully submitted,

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Dated: July 3, 2003

  
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**CERTIFICATE OF MAILING**

I hereby certify that this correspondence is being deposited with the United States Postal service as first class mail, in a postage prepaid envelope, addressed to Mail Stop Non-Fee Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450 on July 3, 2003.

Dated July 3, 2003 Signed Paula M. Halsey Print Name Paula M. Halsey